ZERO RETRIES

JOURNAL OF THE

Northwest Amateur Packet Radio Association

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Steve Stroh N8GNJ Editor

FUTURE NAPRA MEETINGS:

April 8, 1989 13:00

Dan Rocks N7DVR and Mike Sinnett N7IPV on the ARRL Official Observer Program
Marysville Library, 4822 Grove Street, Marysville, WA

From I-5 North, take the Marysville-Tulalip exit, Right at first stoplight, Left at State Street (stoplight), Right on Grove Street, the Library is on the left. Talk in on 146.92-, 146.58 simplex.

May 13, 1989 13:00

Budd Churchward WB7FHC on Packet Node Hunting
Radio Club of Tacoma, 1249 Washington Street, Tacoma, WA

From I-5 South, go West on Highway 16 (Union Avenue). Left on South 15th Street, Right on Washington Street, and look for tower w/beam. Talk in on 145.33-.

June 10, 1989 13:00

Joe Holman KA7LDN, Amsat Representative on Microsat and Pacsat
Boeing Employees Amateur Radio Society Club House

From 405S, take exit 2B, 167N, Ranier Ave S., Turn right on Airport way, Turn Left into Renton Municipal Airport. The BEARS clubhouse is directly beneath the OLD control tower. Talk in on 145.33-.

NAPRA Board of Directors Meetings are held at the Omni Restaurant (in their meeting room) in Seattle on the Third Wednesday of each month at 7:00 P.M. The Omni's address is 4701 S 188th Street, just West of I-5 (take the 188th Street exit).

The public is welcome to attend these or any other NAPRA meeting.

NAPRA VOICE NET:

NAPRA sponsors a Packet Radio Ragchew every Thursday night from 9:00 to 10:00 P.M. on the Evergreen Intertie Voice Repeater Network. In the Puget Sound area, the frequency is 145.33 (-600 KHz input). Any questions, comments, or news are welcome. Newcomers to packet are especially encouraged to check in.

FROM THE BIT BUCKET (EDITORIAL)

Steve Stroh N8GNJ

As has been usual lately, this issue is late. Despite the best of intentions, "things" have continued to come up. The schedule printed in the last issue is obviously incorrect now, but it is my firm intention to publish six full issues of Zero Retries in 1989. I'm going to try to get back on track by the middle of the year. All I can say about deadlines is get it to me as soon as you can- by packet (most preferable) or by mail. Please don't wait to see me at the next meeting to hand me an article- my work schedule is unpredictable and I may not be there.

Nocode- There has been an incredible expenditure of time, effort, and energy expended on the nocode debate. I don't have much to add to the debate (I personally STRONGLY support an entry-level no-code license with digital, satellite, and VHF/UHF voice privileges), and I haven't received anything from other NAPRA board members, so I'll just point out that both AMSAT-NA (Amateur Satellite Corporation, North America) and TAPR (Tucson Amateur Packet Radio Corporation) have strongly endorsed a no code license. These two organizations are very much at the leading edge of amateur radio technology.

Netiquette- The recent QST On-Line column titled "Netiquette: Using the Packet-Radio Network of 1989" has caused quite a stir here in the Northwest. The main point of contention is that the author of the column, Stan Horzepa WA1LOU is of the opinion that "Since the PBBS is rockbound, you cannot move off the network frequency, but freeing up a digipeater or node still promotes some increased network efficiency, especially if you can maintain the connection using a lower power output that is undetected by the digipeater or node."

The problem with that statement is that there are very, very few cases where a signal of any kind on a network frequency cannot be heard by the node- at least here in the Northwest, where most nodes are located on very high points. If the node hears a signal, no matter how weak, it will hold off from transmitting, thereby choking up that particular node. Please, when using the Northwest Packet Network, use the node when you're on a network frequency, and let it be the frequency's "traffic cop".

MONITOR MODE GARBAGE REDUCTION

Doug Everitt N5DUB

If you have a TNC2 or clone with at least 32K of memory installed and you like to monitor channel activity, but your terminal program does not adequately filter screen-modifying characters generated by TCP/IP and NET/ROM headers, you are in luck. Pac-Comm sells a Version 1.1.6 firmware chip which includes the new PID command that toggles a function known as "PID Check". [not listed in the Tiny-2 documentation- Ed.] Normal AX.25 level 2 packets always have a PID of $F0, while NET/ROM transport layer and TCP/IP and other various level 3/4 packets have different PID bytes in their headers. By setting the PID Check function appropriately on your TNC, you can elect to see only normal AX.25 packets while in MON ON mode. For information on Version 1.1.6 firmware upgrades for TNC 2 clones, call Pac-Comm at 813/874-2980.

By the way, Kantronics KAM and KPC users have this function built into the recent releases of their TNC's firmware.

By Doug Everitt N5DUB from The Node, excerpted from Gateway, January 20, 1989

NORTHWEST PACKET NETWORKING FORUM

The Northwest Amateur Packet Radio Association is pleased to announce the First Northwest Packet Networking Forum. It will be held on Saturday, July 15, 1989 beginning at 10:00 A.M. in Kent, WA. Its purpose is to discuss ways to improve the network's operation and architecture today, tomorrow, and far into the future. The forum discussions will be divided into subjects centered around these three time frames with individuals sharing proposals or concepts. Each time frame will have a moderator whose purpose is to insure everyone has an opportunity to express ideas or ask questions. With this in mind, we would ask those who desire to present their ideas to submit a summary in order to allow proper scheduling. Also, we would like to hear of ideas and problems to be discussed. The only prerequisite for attendance is a working knowledge of packet radio and a desire to improve the network.

We will be releasing further details in the near future, i.e. place, time, directions, accommodations, etc. We would like to hear from all those planning to attend. The point of contact in NAPRA is Dennis Goodwin, KB7DZ @ KD7NM PBBS.

COMPUTER SWAP MEET

An event billed as the NW's largest Computer Swap Meet will take place Saturday Apr. 22 from 9 A. M. to 5 P. M. at 525 - 4th Ave N. in Kent (Kent Commons). All makes and models of peripherals, software, and hardware, plus services and technical assistance will be featured. Admission is $3 for adults and $1 for juniors (12-15). Children under 11 accompanied by an adult, and seniors will be admitted free. Seller spaces are available for $35 per 8-by-8 foot spaces ($15 extra for electricity). For more information, call 874-8711 (24 hours).

DIRECT AND DEADLY, PART 2 (WHERE TO GO)

Dennis Goodwin KB7DZ

In part 1, I tried to convey the idea that you should NEVER operate direct on a frequency with a hilltop. One should ALWAYS use the hilltop in ALL conversations. This gives everyone a FAIR shake at using the frequency.

The question comes up: Just where can one go to operate direct? Well, lets take a look at just what frequencies are being used or planned for use in the future on 2 meters. One can find hilltops on 10 frequencies in the Northwest: 144.91 - 145.09 MHz, every 20 kHz. Many places around the country are expanding these hilltops to full duplex digital repeat operation, i.e. +600 kHz transmit: 145.51 - 145.69 MHz, every 20 kHz.

So, of all the remainder of the band that is not presently allocated; it has been proposed we use 145.71 - 145.79 MHz, every 20 kHz, with 145.75 MHz as the standard direct connect frequency. These frequencies should NOT have any hilltop or have any link into the hilltop network!

TELEPHONE BBS FEATURES LOCAL HAM RADIO "ECHO"

Steve Stroh N8GNJ

The Brier Patch BBS (774-9566) in Brier, WA has a feature many packeteers might find of interest- EchoMail. EchoMail is a system that lets thousands of BBS' worldwide (no kidding!) share messages on common topics. Two that are of particular interest on The Brier Patch are Amateur Radio (general topics) and Packet Radio (about guess what). In addition there is a Puget Sound Amateur Radio Echo which is limited to BBS systems in the Puget Sound area, whereas the other two are echoed worldwide. In addition The Brier Patch features a file download section with a good selection of Amateur Radio related software. Use of The Brier Patch is very self explanatory.

PACKET RADIO - AN OVERVIEW

Clifford Neuman N1DMM

This article is intended to give an overview of the ways that packet radio can be used for emergency and public service applications. The advantages and disadvantages for each type of use are discussed and the facilities in place to support them are described.

1. Types of Use

There are several ways that packet radio can be used for communication in emergencies and public service. One can communicate with another station directly or use a digipeater to relay messages. One can use networking nodes to route packets from one place to another, or one can leave a message on a bulletin board system which will route the entire message to its destination. Finally, one can use higher level protocols to set up a true network linking the users in the field with central sites and other stations in the field.

1.1 User to User

The simplest packet radio communication is user to user whether directly, or by using a digipeater or network node to relay ones packets. Advantages of using packet radio in this manner (as opposed to using voice) might include the multiplexing of a single frequency between multiple conversations, automatic error detection and correction, and the ability to send and receive complex messages without having to spell everything phonetically. Another advantage of packet radio is that, by using a printer, it is simple to maintain a readable permanent record of what was sent and received. Another feature of packet radio that is sometimes desirable, but at other times undesirable, is that casual reception by someone without packet equipment is not possible.

1.2 Bulletin Board

The next type of communication by packet radio that might be used is a bulletin board system. Bulletin boards can be used to exchange mail between various sites taking part in emergency or public service communications. Advantages of this type of communication are many. Messages can be queued for later retrieval. The intended recipient does not need to be monitoring at the moment the message is sent. Bulletin boards are able to store a message until a path to the destination becomes available, and then forward the message. Formal traffic can be entered as individual message which can then be forwarded to their destination, or transferred to the National Traffic System at some other point. Finally, bulletin board systems provide a central site at which a permanent record of messages pertaining to an event can be maintained.

1.3 Communication with Programs

Packet radio can be used to communicate with programs (such as database systems) running on remote computers. the main advantage of this type of use is that it is possible to directly enter and retrieve data from central and remote sites without the need for another operator to intervene.

In the future, we will see even higher level packet radio networks used in emergency and public service communications. This might require that the sites in the field be computers (IBM-PC compatibles for example) instead of just terminals. TCP/IP or protocols of a similar level might be used to allow sites in the field to exchange messages, and access data available on other sites in the field and in fixed locations. There are very small and compact PCs that are available already.

This type of networking would provide faster access to remote databases and or services. It will be possible to partially process data locally before it is transmitted. Finally, data can be automatically routed to the correct destination if such routing is required.

2. The Network

There are a number of different components that make up the packet radio network. In this section, I will describe those facilities that you might use to communicate with other stations on the network. This section is intended to give you some idea of what exists, and a general idea of how to use it. It does not provide a step by step set of instructions on how to use these facilities. For that, you should consult documentation available through other sources.

2.1 Direct (Simplex) Communication

When you hear the term "simplex" used in packet radio, it usually means direct communication between two stations without the use of an intermediate node. This is true even though operating through an intermediate node might still result in the use of only a single frequency.

If two stations can communicate reliably without an intermediate node, simplex is probably the fastest way to go. One does not have to wait for each packet to be retransmitted by a digipeater or Net/ROM node. By choosing a clear frequency, collisions and other delays can be avoided. Do not use a frequency that supports hilltop nodes for simplex communication.

It has been proposed that King County ARES choose a simplex frequency for packet operation (in much the same manner that each team has its own simplex frequency). So far, however, no frequency has been chosen.

2.2 Digipeaters

When direct communication is impossible, digipeaters can be used. Every TNC can be used as a digipeater, and in an emergency, one can quickly be placed on a hilltop, or on top of a building. Conventional digipeaters are simplex. They receive packets on one frequency, then retransmit them on the same frequency. Because of this, expensive and bulky equipment such as duplexers are not required.

To communicate with another station through a digipeater, simply specify the digipeater when establishing the connection. On most TNCs, the command would be something like "Connect N1DMM via N7XYZ" if N7XYZ were the name of the digipeater. You can specify a string of up to eight digipeaters to be used, and the packet would be handed from one to the next. Long strings of digipeaters, however, are usually not very reliable, and you are better off limiting yourself to one or two if at all possible.

2.3 NET/ROM

Not too long ago, digipeaters made up the packet radio network in the Puget Sound. More recently, however, the digipeaters have been replaced with multi ported NET/ROM nodes.

If you want to communicate over long distances, you have two choices. You can use HF packet, or you can use the existing NET/ROM network. In the Puget Sound, there is a backbone frequency on which only NET/ROM nodes communicate. Users connect to the NET/ROM nodes on the user frequency. Different frequencies are used for different nodes. This way, users using one node do not interfere with those using another.

Once connected to a NET/ROM node, users can connect to the NET/ROM node nearest their destination. This communication takes place on the backbone between the NET/ROM nodes involved. Other NET/ROM nodes may relay the packets, but the user does not need to know which ones.

Once connected to the desired NET/ROM node, the user can connect to the desired destination whether it is another user, a bulletin board, or a computer being used for emergency communications.

If you use the user frequency associated with a NET/ROM node to communicate with another station on the same frequency, you should establish your connection using the NET/ROM node instead of connecting directly. This will allow the NET/ROM node to regulate the traffic, thus helping the throughput on the channel. If, however, both stations can go onto a separate "simplex" frequency, that is even better.

2.4 Bulletin Board Systems

Most user frequencies have an associated mailbox where messages may be left for local users or dropped off for automatic forwarding to remote users. Bulletins may also be posted or read on such systems.

On many of these systems, traffic can be entered into the national traffic system using the ST (send traffic) command. Such messages should be addressed to ZIP@NTSXX where ZIP is the destination zipcode, and XX is the abbreviation or the state to which the message should be sent. You will then be asked for the subject of the message. Use "traffic for" and the name of the city. Next, enter the entire radiogram (including the header) in the body of the message.

NTS traffic entered in this manner will eventually get through. It may make it to its destination using only packet radio, or someone might have to take it off packet and transfer it to a regional net if there are delays in BBS message forwarding. Because, the message might sit on the board for a while before being forwarded, or before anyone looks at its contents, I would suggest that you not leave priority or emergency NTS traffic on a BBS. This may change in the future.

2.5 Duplex Repeaters (regenerating and non-regenerating)

There are a few "voice" repeaters in the area that are used for digital communications (RTTY and packet). Some of these (by policy) only support certain functions while others can be used by anyone. Such repeaters come in two types. Non-regenerating repeaters are simply voice repeaters being used for packet radio. In regenerating repeaters, each bit of a received packet is decoded, and then regenerated in real time. Regenerating repeaters do not retransmit voice.

The major advantage of duplex repeaters is that everyone can hear everyone else. This makes it much easier to prevent collisions. Another advantage is that the packet is retransmitted while it is being sent, thus saving the retransmission time.

2.6 TCP/IP

Another form of "hilltop" node is the IP switch. Such nodes are used to forward IP packets from one network to another. It is unlikely that you would use one of these in the immediate future, and if you do, you might not even know you are using it. For this reason, I won't describe it further.

3 Common Commands

This section is intended to provide examples of the basic commands you would use to establish connections to other users or network nodes and to access a bulletin board system. It is assumed that your packet station has already been set up and that everything is working properly. Further, someone has set all the parameters for you including the callsign (using the MYCALL command). There are some TNCs that do not use the standard commands, and for those, these examples might not apply.

3.1 Connecting

While you have the "cmd:" prompt from your TNC, and while not currently connected, to connect to W7ABC use the command:

CONNECT W7ABC

If you need to use a digipeater named W7XYZ, then the command would be:

CONNECT W7ABC via W7XYZ

Once connected, what you type will appear on the screen of W7ABC, and what he types will appear on your screen. To disconnect, type ^C
(hold down the control key and type C). You should see the "cmd:"prompt. Next type:
DISCONNECT

3.2 NET/ROM

You can connect to a NET/ROM node the same way you connect to another user. To connect to the NET/ROM node "SEA" use the command:

CONNECT SEA

Once connected, you can use the N (NODES) command to see a list of the other NET/ROM nodes with which you can connect. Use the CONNECT command to connect to any of these nodes. Thus, once connected to SEA, to connect to the Everett node, type:

CONNECT EVT

Once at the NET/ROM node closest to your destination (which might be your local node), you can connect to a station on the user side using the same commands. Thus, if after connecting to EVT, you wanted to reach your final destination, N7ZZZ, you would type the command:

CONNECT N7ZZZ

3.3 Bulletin Board Systems

You can connect to bulletin board system the same way you would connect to any other station. Thus, if you were already connected to the SEA NET/ROM node, you could connect to the associated mailbox by typing:

CONNECT KE7OM

Once connected, you would be told if you have any new messages. If you do, you can read the messages using the R (READ) command followed by the message number. Thus to read message 3501, the command would be:

R 3501

The L (LIST) command can be used to list the message on the bulletin board. LM lists only those message intended for you (ME). The LIST command can be used to find the numbers of those messages you want to read.

To send mail you use the S (SEND) command. Again, there are several options. SP sends a private message. This means that when other users user the LIST command, they won't see that message. ST is used to send NTS traffic as described earlier. The send command should be followed by the call of the intended recipient, and atsign (@) and the call of the bulletin board system on which the user receives mail. The @ and BBS name can be left out for local users. To send a message to W7XYZ you would use the command:

SP W7XYZ

I he used the W7ABC bulletin board system instead of the one you were using, then the command would be:

SP W7XYZ@W7ABC

Once you have entered the send command, you will be asked for the subject of the message. Enter the subject, and type a carriage return (<CR>). Next, you will be asked to enter the message. Type as many lines as are necessary. When you are done, type a <CR> ²Z <CR>. Where ²Z is a control-Z types by holding down the control key and typing a Z.

When you are done using the bulletin board system, you should disconnect by using the B (BYE) command.

4 Summary

This article has given you an idea of what can be done with packet radio, what facilities make up the packet radio network, and how to use those facilities. There is plenty more than can be done with packet radio, but realizing its full potential requires the use of a computer on both sides of the connection. Hopefully I have covered those things you would need to know in the field if packet radio were to be required for an emergency or public service event.

NEW PUBLISHER OF WESTERN US PACKET MAP

Budd Turner N7EOJ

I have taken over updating/distributing the N7HPR Western U.S. ".01 Network" Packet Map, done graphically on the Macintosh computer. If you would like a copy of the map, send an S.A.S.E. to:

N7EOJ: Budd Turner
412 N. Belvedere Ave.
Tucson, AZ 85711

Comments or update information sent to this address or to N7EOJ @ W1FJI will be greatly appreciated.

Downloaded from the KD7NM PBBS

OPEN AND CLOSED NET/ROM NODES

Roy Engehausen AA4RE

If you happen to be exploring different packet frequencies and find a new NETROM node that seems to be local to you, please be aware of the following:

The are OPEN and CLOSED NETROM nodes. OPEN nodes are for the use of anyone. A CLOSED NETROM node is one whose NODENAME starts with a # (Example: #SFO3). CLOSED nodes are special purpose nodes that should not be connected to directly by users.

The purpose behind CLOSED nodes is to either provide a link between other NETROM nodes or between mailboxes. For example, #SFO3 connects several mountain tops together. If you were to go on its frequency and connect directly to #SFO3, you would slow the data going between #SFO3 and the nodes it connects to.

The CLOSED nodes should not keep you out of the network, however. Most CLOSED nodes have an associated OPEN node to provide user access. In the case of the CLOSED node #SFO3, the OPEN node is SFO (W6AMT) on 144.93 Mhz.

We ask for your cooperation in not using a CLOSED node for your initial connection into the network. By respecting the wishes of the node's owner, you show basic courtesy to another amateur and keep the data moving for all networks. If you feel there is a need for an OPEN node somewhere, consider getting involved and helping to finance/operate the node.

Downloaded from the KD7NM PBBS

NEW PACKET RADIO SOFTWARE

Steve Stroh N8GNJ

I've recently received two very interesting programs for use on packet: DosGate by Rich Bono NM1D and Lan-Link by Joe Kasser G3ZCZ.

DosGate allows an IBM PC compatible computer to be operated remotely via packet radio. The primary use for DosGate is to run programs that would be of benefit to a wide variety of users at a centralized location, and also to allow use of PC software for those that do not have a PC. One example is to run another of NM1D's programs called Seesats, which can do an on-line update of when the next amateur satellite will pass within range. Even with a dumb terminal, a user could connect with a station running DosGate and see the latest orbital predictions.

DosGate has a few rough spots. For one, programs that run under DosGate must use character mode only (no graphics) and DOS calls (send screen output to the operating system, NOT directly to the video memory, as is commonly done to increase speed). Another problem is that there is little security built into DosGate- users typically have full access to the host computer's DOS, including (if the files are present) the dreaded FORMAT and RECOVER programs. NM1D solves this problem by running DosGate on a minimally equipped XT computer. If this computer is crashed, nothing major is lost- backups are simply restored.

DosGate certainly does work and within its limitations it works very well. A (somewhat chilling) example NM1D used was that Infocom games (text only "adventure" type games) work quite well under DosGate. NM1D reports that there are several DosGate systems on the East Coast. There will soon be a DosGate system in the Puget Sound area run by Joe Holman KA7LDN for the purpose of supporting Amateur Satellite activity.

Lan-Link is designed primarily for the PK-232, although it can accommodate almost any current TNC. Its primary use is to automate an individual's packet use in a Local Area Network, and automate the use of the non packet modes that a PK-232 is capable of (such as AMTOR). Some of the more interesting packet features of Lan-Link are:

Will optimize the various TNC settings for use in a particular Local Area Network.

Upon seeing your station's call in a BBS' mail beacon, Lan-Link will attempt to connect to the BBS and download your mail and any other Bulletin types you have preselected.

A conference and bridge mode in multi-connect situations.

Sound an alert signal to let the operator when a preselected call appears on the monitored frequency

Automatic Net/Rom path setting (I understand this to be a "macro" feature that will allow you to automate the connections necessary for a multiple hop Net/Rom connection.)

Automatic CQ caller, and sound an alert when a reply is received.

I have read some rave reviews of Lan-Link. Unfortunately I have not yet been able to get Lan-Link to work with my system. The problem has something to do with the RS-232 port baud rates not matching when Lan-Link attempts its optimization routine. Lan-Link has some very interesting features, and seems well worth investigating. As soon as I can get my problems with it ironed out I'll be giving it a full blown trial.

Both of these programs are marketed under the shareware concept, and as such may be freely distributed. I will have them available for distribution at NAPRA meetings.

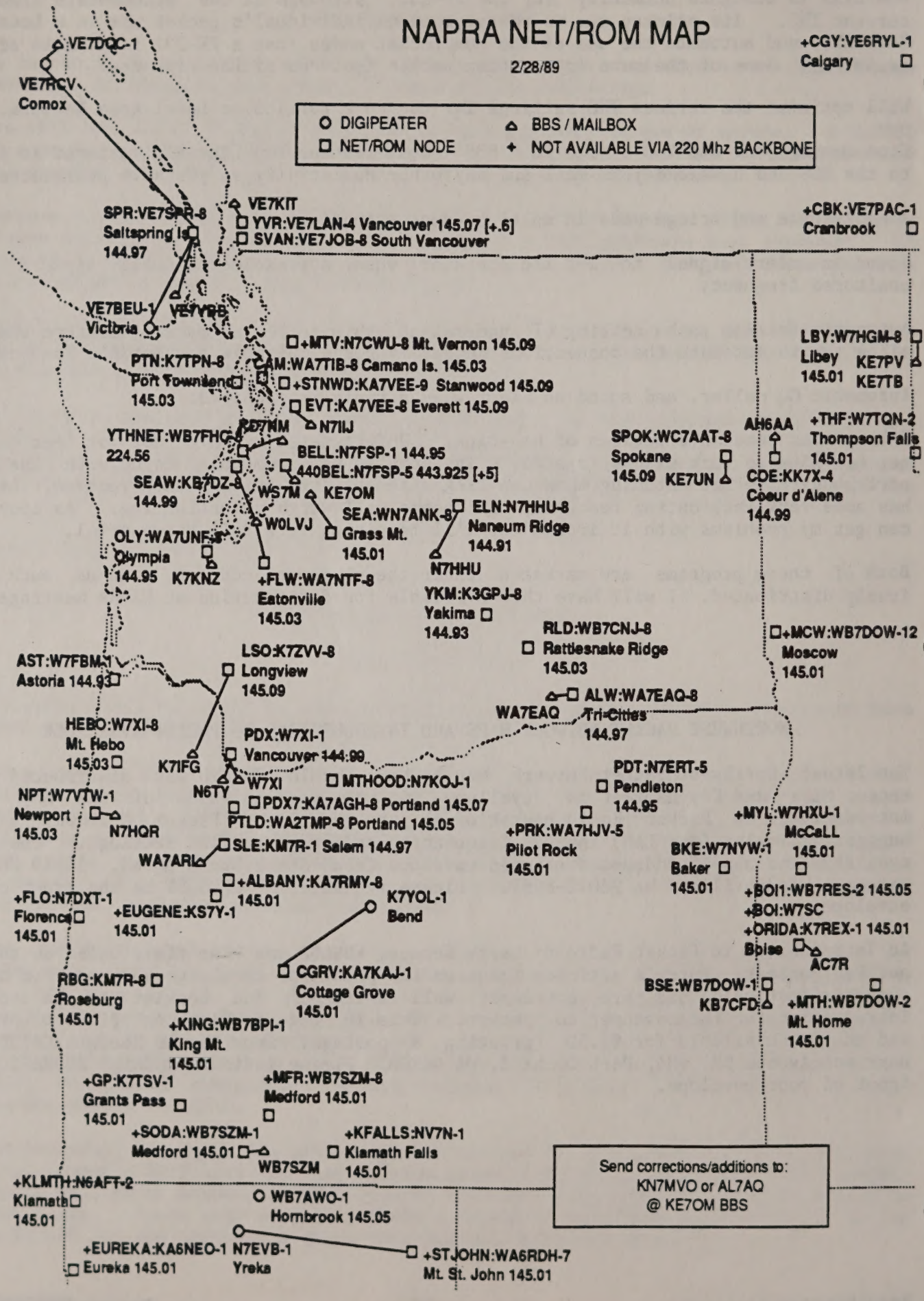
NORTHWEST PACKET NETWORK MAPS AND INTRODUCTIONS TO PACKET AVAILABLE

The latest Northwest Packet Network Map by Marc Herold KN7MVO was distributed at the recent Mike and Key Hamfest in Puyallup. On the reverse side of the map was an introduction to Packet Radio operation in the Northwest Packet Network, including suggested simplex (non LAN) packet frequencies and suggested TNC settings. The map is available for a self addressed stamped envelope from Steve Stroh N8GNJ, 14919 NE 163rd Street, Woodinville, WA 98072-8957. Please indicate MAP REQUEST on the front of your envelope.

An Introduction to Packet Radio by Larry Kenney, WB9LOZ was also distributed at the Mike and Key Hamfest. Larry's articles focus on the practical knowledge necessary to operate packet effectively and are extremely well written. The booklet is an excellent introduction for the newcomer to packet. This 16 page booklet cost $1.00 to produce, and so is available for $1.50 (printing + postage) from Dennis Goodwin KB7DZ, 1748 Harrison Avenue SE, #M4, Port Orchard, WA 98366. Please indicate BOOKLET REQUEST on the front of your envelope.

NAPRA NET/ROM MAP

2/28/89



NAPRA, the Northwest Amateur Packet Radio Association is an organization of Amateur radio operators dedicated to the growth of the Amateur Packet Radio network in the Pacific Northwest. Membership is open to all interested individuals- an amateur radio license is not required for membership. NAPRA's yearly dues are $15.00 and include a subscription NAPRA's bimonthly newsletter Zero Retries.

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